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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/785,791	02/16/2001	Michael D. Goldstein	12808.12USI1	5543

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EXAMINER	
AN, SHAWN S	

ART UNIT	PAPER NUMBER
2483	

MAIL DATE	DELIVERY MODE
12/20/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/785,791	Applicant(s) GOLDSTEIN ET AL.	
	Examiner SHAWN AN	Art Unit 2483	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 December 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-3,6-13,15-25,28-31,33,34,36-38 and 40-42* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-3,6-13,15-25,28-31,33,34,36-38 and 40-42* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/29/2011 has been entered.

Response to Amendment

2. As per Applicant's instruction as filed on 12/13/11, claims 1 and 30 have been amended, and claims 4-5, 14, 26-27, 32, 35, and 39 have been canceled.

Response to Remarks

3. Applicant's remarks with respect to amended claims as filed on 12/13/11 have been carefully considered but are moot in view of the following new ground(s) of rejection incorporating previously cited prior art references.

As per Applicant's arguments/remarks regarding original claimed features, please refer to the following new ground(s) of rejection.

In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on <u>combinations of references</u>. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In this case, Takahashi's stereoscopic device <u>combining/utilizing</u> Suzuki's movement compensation technique meets at least all of the claimed limitations as recited in independent claims 1 and 30.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3, 9-10, 12-13, 15, 17-20, 23-25, 28-31, 37-38, and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (5,522,789) in view of Suzuki (5,796,427).

Regarding claims 1, 9, and 30, Takahashi discloses a stereoscopic device and method for producing a sequence of stereoscopic images of an object, comprising:

a sensor assembly (Fig. 13(a), 31) having an optical axis for detecting a sequence of stereoscopic images of an object (Fig. 13(c));

a movement value detecting means (15B) for detecting a magnitude of adjusting the zoom optical system; and

a processing unit (58) connected to the sensor assembly and to the movement value detecting means;

wherein the processing unit selects corresponding portions of the alternating (right and left images) stereoscopic images (Fig. 13(c)), according to a signal received from the movement value detecting means, and compensates for detected movements, thereby producing a visually stable sequence of display images (col. 12, lines 58-67; col. 13, lines 1-35).

Takahashi fails to disclose a movement detector for detecting movements of the sensor assembly perpendicular to the optical axis, relative to the object, and compensating for detected movements of the stereoscopic sensor assembly, an average of the movement to be constant and defining a location of origin and the processing unit being connected to the movement detector, wherein the sequence of display images comprising a plurality of sub-matrices, wherein each one of the sub-matrices is selected from a respective ones of the stereoscopic images, each one of the

sub-matrices being located and measuring a distance of equal to a respective one of the movements from the location of origin, in a direction opposite to the respective movement, relative to the location of origin, wherein each one of the sub-matrices has a same area size.

However, Suzuki teaches a prior art image stabilizer comprising a movement detector (Fig. 3, 5; via Ss input signal, the movement signal) for detecting movements of the sensor assembly, relative to an image signal of an object/target, and compensating for detected movements of the sensor assembly (abs.), an average of the movement to be constant (would be 0) and defining a location of origin (Fig. 4, from F1) and a processing unit (6) being connected to the movement detector (5) (Figs. 2 and 4; A1 and/or F3), wherein the processing unit (6) compensates for detected movements by selecting a corresponding portion (A1) of the images (Fig. 4; F1 and F2), according to the signal received from the movement detector (5), thereby providing an image stabilizer which does not deteriorate quality of an image even when performing compensation of a movement/fluctuation (Figs. 3-4; col. 5, lines 21-67; col. 6, lines 1-33; col. 2, lines 35-40), wherein each one of the sub-matrices (A1), is selected from a respective ones of the images (F1 and F2), each one of the sub-matrices being located a distance equal to a respective one of the movements from the location of origin (from F1), in a direction opposite to the respective movement, relative to the location of origin, wherein each one of the sub-matrices has a same area size (with respect to an output frame, F3)(col. 4, lines 37-67; col. 5, lines 1-20; col. 6, lines 1-33).

With respect to the recited "detecting movements of the sensor assembly perpendicular to the optical axis, relative to the object", it is considered obvious to one of skill in the art that when computing a directional of movement of an imaging sensor assembly relative to an object/target, a fixed reference point/line, which is an inherent feature required in order to compute any movement (from reference point A to destination point B), is conventionally well known as an optical axis from the imaging sensor to the object/target. From this fixed reference point/line, if the image sensor is detected to move upward from the fixed reference point/line, then it is further obvious to conclude that the image sensor has moved perpendicular to the optical axis or the fixed

reference point/line, of which a direction of movement is computed by Suzuki's movement detector.

Similarly, the Applicant illustrates the object and the sensor assembly, when the sensor assembly has moved to a new position (Applicant: Figs. 25B-25F).

Therefore, it would have been considered contentiously obvious to a person of ordinary skill in the relevant art employing the stereoscopic device/method for producing a sequence of stereoscopic images as taught by Takahashi to further incorporate/combine Suzuki's prior art teachings of compensating/correcting for images movement as discussed above so that the movement detector detects movements of Takahashi's sensor assembly perpendicular to the optical axis, relative to the object, and compensates for detected movements of the stereoscopic sensor assembly, an average of the movement to be constant and defining a location of origin, wherein the processing unit is connected to the movement detector so as to select corresponding portions of the alternating stereoscopic images, according to a signal received from the movement detector, wherein the sequence of display images would comprise a plurality of sub-matrices, wherein each one of the sub-matrices is selected from a respective ones of the stereoscopic images, each one of the sub-matrices being located and measuring a distance equal to a respective one of the movements from the location of origin, in a direction opposite to the respective movement, relative to the location of origin, wherein each one of the sub-matrices has a same area size, thereby providing an image stabilizer which does not deteriorate quality of an image even when performing compensation of a movement/fluctuation.

Regarding claim 3, Suzuki teaches the processing unit (6) being connected to the movement detector (5) and a memory unit (3) connected to the processing unit.

Regarding claim 10, the Examiner takes official notice that displaying partially stereoscopic images is conventionally well known in the art.

Regarding claims 12-13, a conventional color sensor arrays such as RGB and CYMG sensor arrays are well known in the art for detecting different wavelengths.

Regarding claims 15 and 37, Takahashi discloses at least two light valves being operative to open at a different predetermined timing, wherein the

multiwavelength (RGB) light sensor array (Fig. 13(a), 31) detects images corresponding to a predetermined combination of an open state of a selected one of the light valves and a selected one of at least two alternating beams of light (col. 11, lines 39-67; col. 12, lines 1-5).

Regarding claim 17, Takahashi discloses capture means (Fig. 13(a), 60) connected to the multiwavelength (RGB) light sensor array for capturing data from the multiwavelength (RGB) light sensor array.

Regarding claim 18, Takahashi discloses an image processor (Fig. 13(c), 60), and a storage unit (Fig. 14, 65) for capturing data. Since the above cited references disclose storage unit, movement detector, light valves, and the multiwavelength light sensor array, it would have been considered obvious to utilize a controller being connected to the storage unit, the movement detector, the light valves, and the multiwavelength light sensor array, and timing the operation of the light valves, the multi wavelength light sensor array, and the controllable multi wavelength illumination unit for a purpose of controlling the above devices for optimal image processing.

Regarding claims 19 and 20, Takahashi discloses the CCD preferably being a high- definition device having a large imaging surface, but nevertheless, fails to disclose the CCD including two group of sensors or a plurality of sensors.

However, color CCD array comprising two groups of sensors or a plurality of sensors are conventionally well known in the art. Therefore, one of skill in the art would recognize that color CCD array could easily have been utilized, so that the CCD array includes at least two group of sensors for detecting light in different and/or predetermined range of wavelengths such as blue or red or green.

Regarding claim 23, the combination of Takahashi and Suzuki does not specifically disclose different ranges of wavelength associated with the sensors being selected from colors such as RGBCYMG, Infra red, Ultra violet, and/or visible light. However, color CCD sensor array is conventionally well known in the art. Therefore, it would have been obvious to select different colors as listed above, for better lighting/illumination of an object to be analyzed.

Regarding claims 24-25, RGB and CYMG color sensor arrays are conventionally well known in the art.

Regarding claim 28, the combination of Takahashi and Suzuki does not specifically disclose selecting colors such as RGBCYMG. However, color CCD sensor array is conventionally well known in the art. Therefore, it would have been obvious to select the color of sub-matrices from colors as listed above, for better lighting/illumination of an object to be analyzed.

Regarding claim 29, Takahashi discloses a stereoscopic video generator (Fig. 13(a), 59) connected to the processor, and a stereoscopic display unit (Fig. 13(c)) connected to the video generator for producing the stable sequence of images.

Regarding claim 31, Takahashi discloses light receiving means (Fig. 13(c); col. 13, lines 19-21). Therefore, it would have been considered obvious to illuminate a detected area of an object for better lighting.

Regarding claim 38, the Examiner takes official notice that a light source comprising a rotating color (RGB) filter for producing at least two alternating beams of light, wherein the beams of light are characterized as being in a different range of wavelengths, is well known in the art for detecting different wavelengths for better lighting/illumination.

Regarding claims 41-42, Takahashi discloses alternating stereoscopic images alternating between a left image and a right image (Fig. 13(c)).

6. Claims 2 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi and Suzuki as applied to claims 1 and 30 above, respectively, and further in view of Adelson (5,076,687).

Regarding claims 2 and 33, the combination of Takahashi and Suzuki does not particularly disclose a lenticular lens array and a light sensor array.

However, Adelson teaches a conventional optical apparatus including a lenticular lens layer (Fig. 7, 32) and a light sensor array (33), wherein the lenticular lens layer is located in front of the sensor array (Fig .7).

Therefore, it would have been considered obvious to a person of ordinary skill in the relevant art employing a stereoscopic device/method as taught by Takahashi to incorporate the lenticular lens layer and the light sensor array as taught by Adelson as an alternative efficient way for detecting stereoscopic images.

Regarding claim 34, Adelson teaches capturing the light from a normally illuminated scene (col. 1, lines 12-17). Further, the Examiner takes official notice that a light source comprising a rotating color (RGB) filter for sequentially illuminating the detected area with alternating beams of light are well known in the art for detecting different wavelengths.

7. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi, Suzuki, and Adelson as applied to claim 35 above, and further in view of Watanabe (5,812,187).

Regarding claim 36, Suzuki teaches sub-matrices (Fig. 4, A1).

The combination of Takahashi, Suzuki, and Adelson does not specifically disclose illuminating ranges of wavelength.

However, it is well known for a light source to be utilized for illuminating an object/device, such as an endoscope.

Furthermore, Watanabe teaches a light source (Fig. 1, 5) for illuminating ranges of wavelengths (7).

Therefore, it would have been considered obvious to a person of ordinary skill in the relevant art employing a stereoscopic method as taught by Takahashi to incorporate the Suzuki's sub-matrices and Watanabe's's illuminating unit so as to associate each one of the sub-matrices, at the different predetermined timing, with the different range of wavelengths for a sole purpose of better illuminating the object in stereoscopic mode.

8. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi and Suzuki as applied to claim 39 above, and further in view of Watanabe (5,812,187).

Regarding claim 40, Suzuki teaches sub-matrices (Fig. 4, A1).

The combination of Takahashi and Suzuki does not specifically disclose illuminating ranges of wavelength.

However, it is well known for a light source to be utilized for illuminating an object/device, such as an endoscope.

Furthermore, Watanabe teaches a light source (Fig. 1, 5) for illuminating ranges of wavelengths (7).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a stereoscopic method as taught by Takahashi to incorporate the Suzuki's sub-matrices and Watanabe's's illuminating unit so as to associate each one of the sub-matrices, at the different predetermined timing, with the different range of wavelengths for a sole purpose of better illuminating the object in stereoscopic mode.

9. Claims 6-8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi and Suzuki as applied to claim 1 above, and further in view of Watanabe (5,812,187).

Regarding claim 6, Suzuki discloses an interface (Fig. 3, 2) being connected to the sensor assembly and to the processor;

Takahashi discloses a stereoscopic video generator (Fig. 13(a), 59) connected to the processor, and a stereoscopic display unit (Fig. 13(c)) connected to the video generator for producing the stable sequence of images.

The combination of Takahashi and Suzuki does not specifically disclose a light source being connected to the interface.

However, it is well known for a light source to be utilized for illuminating an object/device, such as an endoscope for better lighting.

Furthermore, Watanabe teaches a light source (Fig. 1, 5) for illuminating an object.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a stereoscopic device as taught by Takahashi to incorporate the Watanabe's's light source unit so that the light source is connected to the Suzuki's interface for a sole purpose of illuminating the object/device for better lighting.

Regarding claim 7, Watanabe teaches producing light in a predetermined range of wavelengths, such as red, green, and blue (Fig. 1, 7).

Regarding claim 8, Watanabe's teaches an endoscope (Fig. 1) including a conventional light source unit (5) producing at least two alternating beam of light (7) as being in a different range of wavelengths.

Regarding claim 11, Watanabe's discloses a wavelengths consisting of visible red, green blue colors (7). Furthermore, conventional colors such as cyan, yellow, magenta, infra-red, ultra-violet, and visible light are well known in the art. Therefore, it would have been obvious to select colors from above to be used for specific application.

10. Claims 16 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi and Suzuki as applied to claim 15 above, and further in view of Watanabe (5,812,187).

Regarding claims 16 and 21, the combination of Takahashi and Suzuki does not specifically disclose a controllable multi wavelength illuminating unit producing at least two alternating beam of light as being in a different range of wavelengths.

However, Watanabe's teaches an endoscope (Fig. 1) including a conventional controllable multi wavelength illuminating unit (Fig. 5) producing at least two alternating beam of light (7) as being in a different range of wavelengths.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a stereoscopic device as taught by Takahashi to incorporate the Watanabe's's controllable multi wavelength illuminating unit as a light source being connected to the processing unit to produce at least two alternating beam of light (~ G, B) having a different range of wavelengths for generating a more accurate color video signal, thus improving an image quality.

Regarding claim 22, Watanabe's discloses a wavelengths consisting of visible red, green blue colors light (7). Furthermore, conventional colors such as cyan, yellow, magenta, infra-red, ultra-violet, and visible light are well known in the art. Therefore, it would have been obvious to select colors from above for better lighting/illumination of an object to be analyzed in a specific application.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to *Shawn An* whose telephone number is 571-272-7324.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Joseph Ustaris can be reached on 571-272-7383.

12. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SHAWN AN/
Primary Examiner, Art Unit 2483